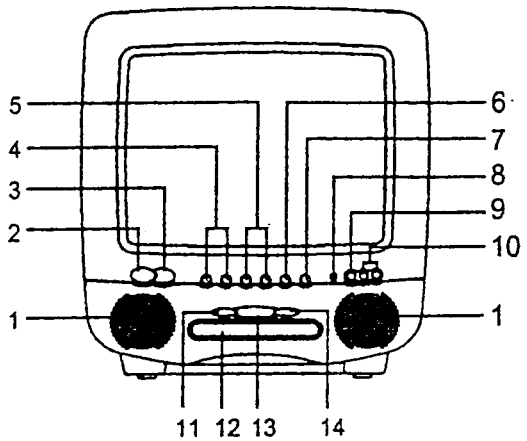
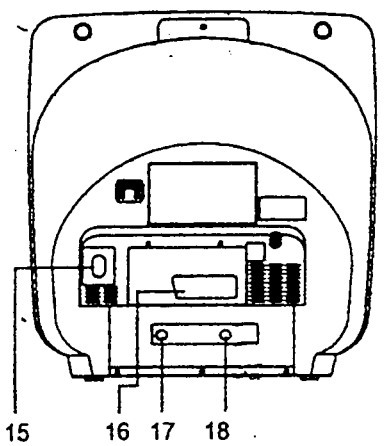
Roadstar®

Service Manual - TVD-1437

TVD-1437

LOCATION OF CONTROL

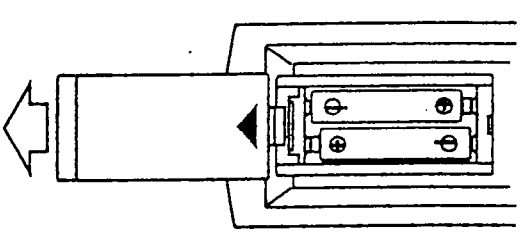




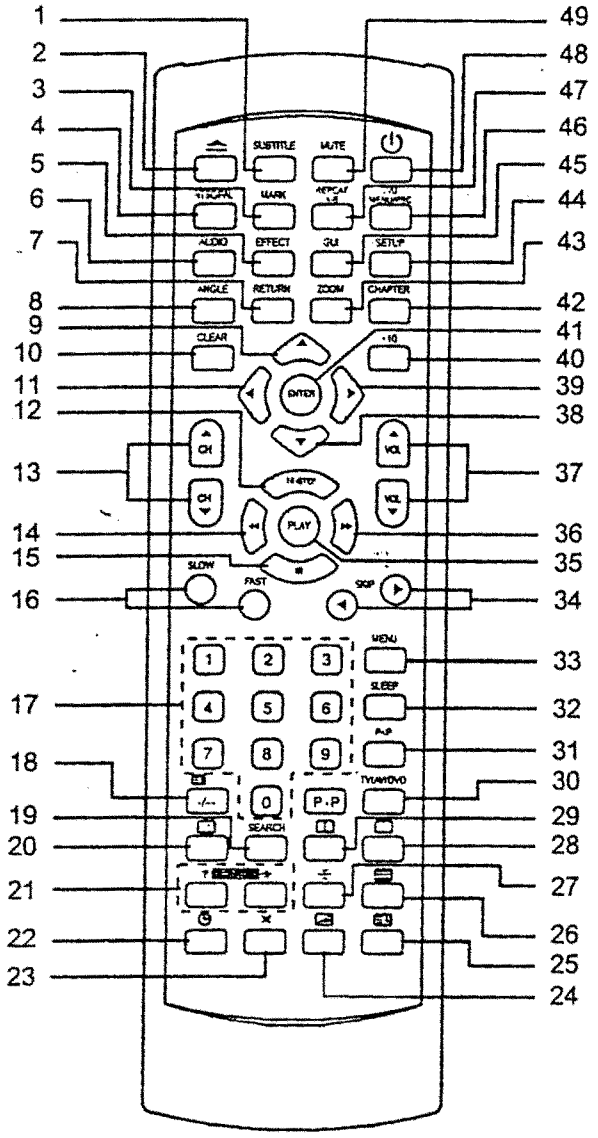
1. Speaker
2. Power Button
3. Remote Sensor
4. Channel Buttons
5. Volume Buttons
6. TV Store Button
7. TV/AV/DVD Button
8. Earphone Socket
9. Video Input Socket
10. Audio Input Socket (R+L)
11. Open/Close Button
12. DVD Loader
13. DVD Play Button
14. DVD Stop Button
15. 75 ohm Antenna Socket
16. Scart Connector
17. S-Video Out Socket (For DVD only)
18. Audio digital Out Socket (For DVD only)

BATTERY INSTALLATION (Remote Control Unit)

Insert two "AA" or "R06" 1.5V batteries as illustrated and replace the cover.



REMOTE CONTROL UNIT



1. DVD Subtitle Button
2. Eject Button
3. Mark Button
4. PAL / NTSC Button
5. Eject Button
6. Audio Button
7. Return Button
8. Angle Button
9. Direction Up Button
10. Clear Button
11. Direction Left Button
12. Pause/Step Button
13. TV Channel Buttons
14. Skip Backward Button(Back)
15. Stop Button
16. Slow / Fast Forward Buttons
17. Numeric Buttons
18. TV Personal Preference Button
19. TV Search Buttons
20. TV Recall Button
21. Teletext Fine Tune Function Buttons
22. Teletext Time Display Button
23. TV System/Teletext Cancel Button
24. Teletext Mix Mode Button
25. Teletext Page Number Down Button
26. TV Teletext Button
27. TV Store / Teletext Stop Button
28. Teletext Mode Button
29. Teletext Index Button
30. TV / AV / DVD Button
31. TV Previous Program Button
32. TV Sleep Button
33. TV Menu Button
34. DVD Skip Backward / Forward Buttons
35. Play Button
36. Skip Backward Button(Next)
39. Direction Right Button
37. Volume Buttons
38. Direction Down Button
40. +10 Button
41. DVD Enter Button
42. Program Button
43. DVD Zoom Button
44. Setup Button
45. GUI Button(Graphic Use Interface)
46. DVD Menu/PBC Button
47. Repeat A-B Button
48. Power On / Off Button
49. Mute Button

GENERAL ADJUSTMENT INSTRUCTION

This receiver is transistorized and special care should be taken when servicing. Read the following matters that demand special attention before attempting adjustment.

1. Adjustment requires an exact procedure and should be undertaken only when necessary.
2. An isolation transformer should be used during any dynamic service to avoid possible shock hazard.
3. The test equipment specified or its equivalent is required to perform the alignment properly. Use of equipment which does not meet these requirements may result in improper alignment.
4. Correct matching of the equipment is essential. Failure to use proper matching will result in responses which cannot represent the true operation of the receiver.
5. The AC power line voltage should be kept 200 to 240 volts 50Hz during alignment.
6. Do not attempt to connect or disconnect any wire while the receiver is in operation. Make sure the power cord is disconnected before replacing parts in the receiver.
7. Switch on the TV receiver and adjust the controls for optimum picture.
8. Unless otherwise noted, do not perform any adjustment until the receiver has been turned on for at least 10 minutes.
9. Set the TV/AV switch to TV position.

Picture and Sound I.F. Adjustment - Test Equipment

1. AM/FM signal generator (4.5 MHz - 6.5 MHz)
2. Sweep / Marker signal operator (30 MHz - 60 MHz)
3. Sync. oscilloscope
4. Oscilloscope (Volt sensitivity over 10mV and input impedance over 1 Mohm, below 10PF)
5. Probe (Low capacitance)
6. High impedance electronic voltmeter on VTVM (Input impedance having 100K ohm/V at least).
7. DC power supply (Source such as a battery or a well regulated and isolated DC bias supply)

Dual SIF Alignment

Set signal generator to 1 mono sound
System 1 for 6.0 MHz sound - press "SYS 1/2" key to "System-1" position to obtain 6.0 MHz sound.

Picture I.F. and AFC Adjustment

P.I.F. Alignment

1. Connect the signal output of sweep/marker generator in series to TP201 on tuner through 1K ohm resistor and 1000PF capacitor. (see Fig. 1)
2. Connect the vertical input terminal of a sync. oscilloscope in series with a 100K ohm resistor to TP203.
3. Apply a +16V DC across C406 on Main P.C. Board.
4. Apply a +8.8V DC dummy AGC bias in series TP204 (Pin 5 of IC201) through 500 ohm resistor.
5. Tune L204 alternatively to obtain a waveform as shown in Fig. 2.

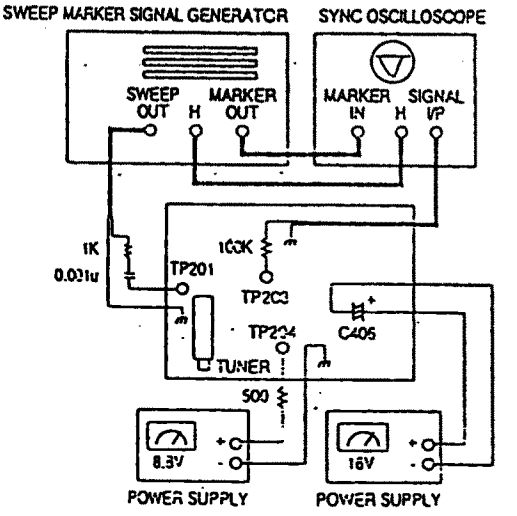


Fig. 1

P.I.F. RESPONSE

No.	BG	dB
1.	31.9 MHz	-40
2.	33.4 MHz	-20
3.	34.47 MHz	-6
4.	37.9 MHz	0
5.	38.9 MHz	-4
6.	40.4 MHz	-40

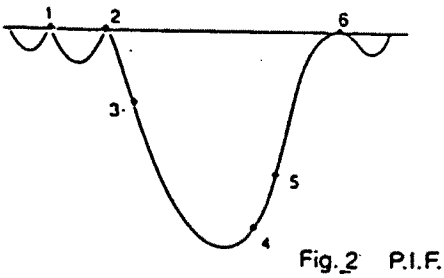


Fig. 2 P.I.F. Response Curve

A.F.C. Alignment

1. Connect the signal output of sweep/marker generator in series to TP201 on tuner through 1K ohm resistor and 1000PF capacitor. (see Fig. 3)
2. Connect with a 100K ohm resistor to TP203 the vertical input terminal of a sync. oscilloscope in series.
3. Apply a +16V DC across C406 & C514 Main P. C. Board.
4. Apply a +4V DC dummy AGC bias in series TP204 (pin 48 of IC201).
5. Tune L204 to obtain a waveform as shown in Fig. 4.

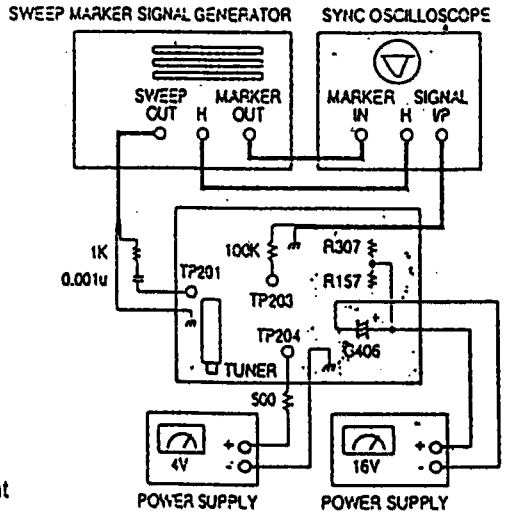


Fig. 3 Test Equipment

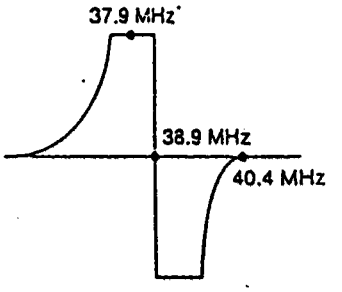


Fig. 4 AFC Response Curve

GENERAL ADJUSTMENT

Automatic Degaussing

An automatic degaussing coil is attached around the picture tube, degaussing the tube properly in about one second after the set is switched on. If the receiver is moved or faced in a different direction, the power must be switched off at least 15 minutes in order that the automatic degaussing circuit operated properly. External degaussing is necessary if the automatic degaussing proves ineffective affect the set is moved.

B+ (110V) Adjustment

CAUTION : To avoid X-ray hazards, B+ voltage must be set correctly at 110V position.

1. Make sure the AC power supply is 230V, 50Hz.
2. Switch on the TV receiver, tune in an active channel.
3. Connect "E" point of Q507 on the Main P.C. Board to a reliable DC voltmeter.
4. Set contrast, brightness, colour to maximum.
5. Adjust VR501 on Main P. C. Board for B+ 110V voltage reading.

High Voltage Check

CAUTION : There is no high voltage adjustment in this chassis, B+ 110V voltage directly relates to the high voltage, it must be properly adjusted to insure the correct high voltage. The high voltage does not exceed 30KV under any conditions.

1. Connect an accurate high voltage meter to the second anode cap of the picture tube.
2. Turn on the receiver, set brightness and contrast controls to minimum (Zerobeam current).
3. Make sure the high voltage does not exceed 30KV.
4. No matter whether the luminance, contrast and chrominance controls are set to maximum or minimum, the high voltage must be kept under 30KV.

Height Adjustment

Vertical Height Control (VR402) can change the size of the picture. Make the adjustment until the picture overscans the mask 2mm.

Focusing

Receive a TV test pattern signal, adjust controls for optimum picture. Adjust Focus Control for a well-defined, sharpest display in the center area of the screen.

Delay AGC Adjustment

1. Tune the set in the strongest station in your area.
2. Turn AGC Delay control (VR201) on Main Board to fully counterclockwise position.
3. Adjust VR201 clockwise until noise (snow) disappears from the screen.

White Balance Adjustment

1. Receive a monochrome signal and warm up the set for 15 minutes.
2. Set the R.G.B. cut off controls VR601, VR602, VR603 and the G.B. drive control VR604, VR605 at center positions.
3. Adjust the screen control - brightness, contrast, colour to minimum.
4. Set the TV to AV mode.
5. Adjust the screen voltage to +550VDC with high voltage meter (impedance >1000M ohm)
6. Set the luminance and contrast control at normal position. Adjust VR601, VR602 to maintain a good white balance at the brightest part of the screen.
7. Adjust the brightness and contrast controls to maximum and minimum. Observe the screen white balance, if it is not proper in high brightness or low brightness condition, adjust R.G.B. cut-off controls or G.B. drive controls in order to maintain a good white balance in both low and high luminance conditions.

Sub-Brightness Adjustment

1. Receive Grey Scale Pattern.
2. Set control as follows:-
   Brightness control ..... Min. position
   Contrast control ..... Min. position
   Colour control ..... Min. position
3. Adjust Sub-Brightness (VR203) to get 2-3 bars just illuminate Grey Scale Pattern.

COLOUR PURITY AND CONVERGENCE ADJUSTMENT

Colour Purity Adjustment

NOTE : Before attempting any purity adjustments, the receive should be operated for at least fifteen minutes.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Adjust the Contrast and Brightness controls to maximum.
3. Adjust Red and Blue Cut-off controls to provide only a green raster. Advance the Green Cut-off controls if necessary.
4. Loosen the clamp screw holding the yoke backward to provide vertical green belt (zone) in the picture screen.
5. Remove the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet (see Fig. 5) around the neck of the picture tube until the green belt is in the center of the screen. at the same time, center the raster vertically.
7. Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8. Check the purity of the red and blue raster by raster by adjusting the Bias controls.
9. Obtain a white raster, referring to white balance adjustment.
10. Proceed with convergence adjustment.

Convergence Magnet Assembly Positioning

Convergence magnet assembly and rubber wedges need mechanical positioning following Fig. 7.

Center Convergence Adjustment

NOTE : Before attempting any purity adjustments, the receive should be operated for at least fifteen minutes.

1. Receive crosshatch pattern with a colour bar signal generator using a degaussing coil.
2. Adjust the Brightness and Contrast controls for well defined pattern.
3. Adjust two tabs of the 4 Pole Magnets to change the angle between them (see Fig. 6) and superimpose red and blue vertical lines in the center area of the picture screen. (see Fig. 7)
4. Turn both tabs at the same time keeping the constant angle to superimpose red and blue horizontal lines at the center of screen. (see Fig. 7)
5. Adjust two tabs of 6 Pole Magnets to superimpose red / blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4 Pole Magnets and 6 Pole Magnets interfact and make dot movement complex.

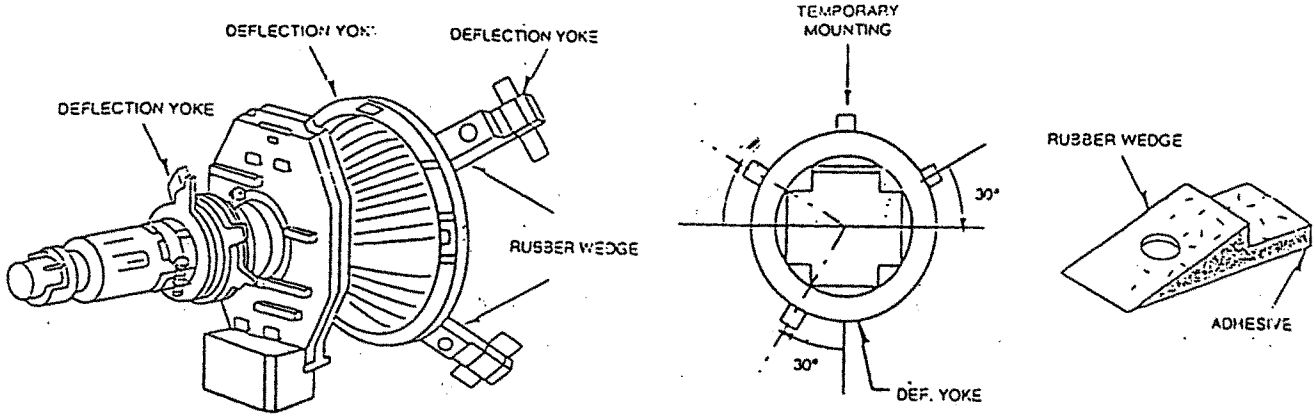
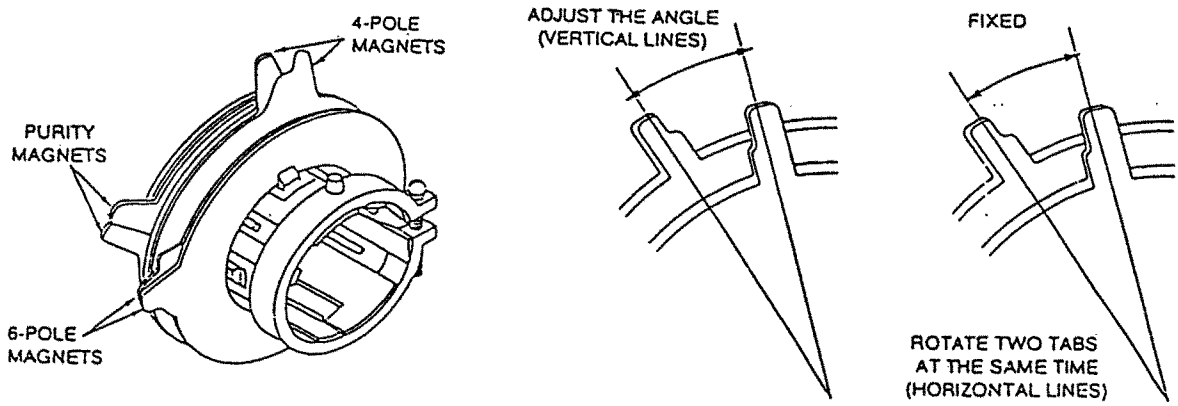


Fig. 4 Rubber Wedges Location

Circumference Convergence Adjustment

NOTE : This adjustment requires Rubber Wedges and Glass Cloth Tapes.

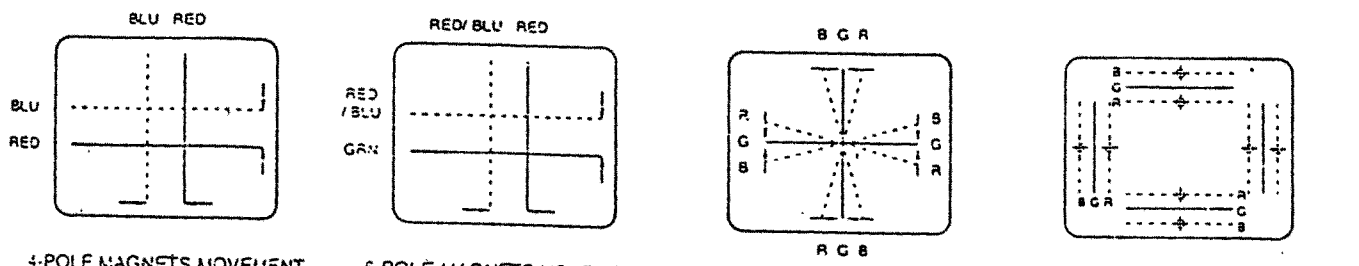
1. Loosen the clamping screws of deflection yoke to allow the yoke to tilt.
2. Place a wedge as shown in Fig. 3 temporarily. (Do not remove cover paper on adhesive part of the wedge.)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference (see Fig. 7). Push the mounted wedge into the space between picture tube and the yoke to hold the yoke temporarily.
4. Place other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left obtain better convergence in circumference. (see Fig. 7)
6. Hold the yoke position and put another wedge in either upper space, remove cover paper and stick the wedge on picture tube to hold the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After placing three wedges, recheck over all convergence. Tighten the screw firmly to hold the yoke tightly in place.
9. Stick 3 grass cloth tapes on wedges as shown in Fig. 5.



CONVERGENCE MAGNET ASSEMBLY

ADJUSTMENT OF MAGNETS

Fig. 6



4-POLE MAGNETS MOVEMENT

6-POLE MAGNETS MOVEMENT

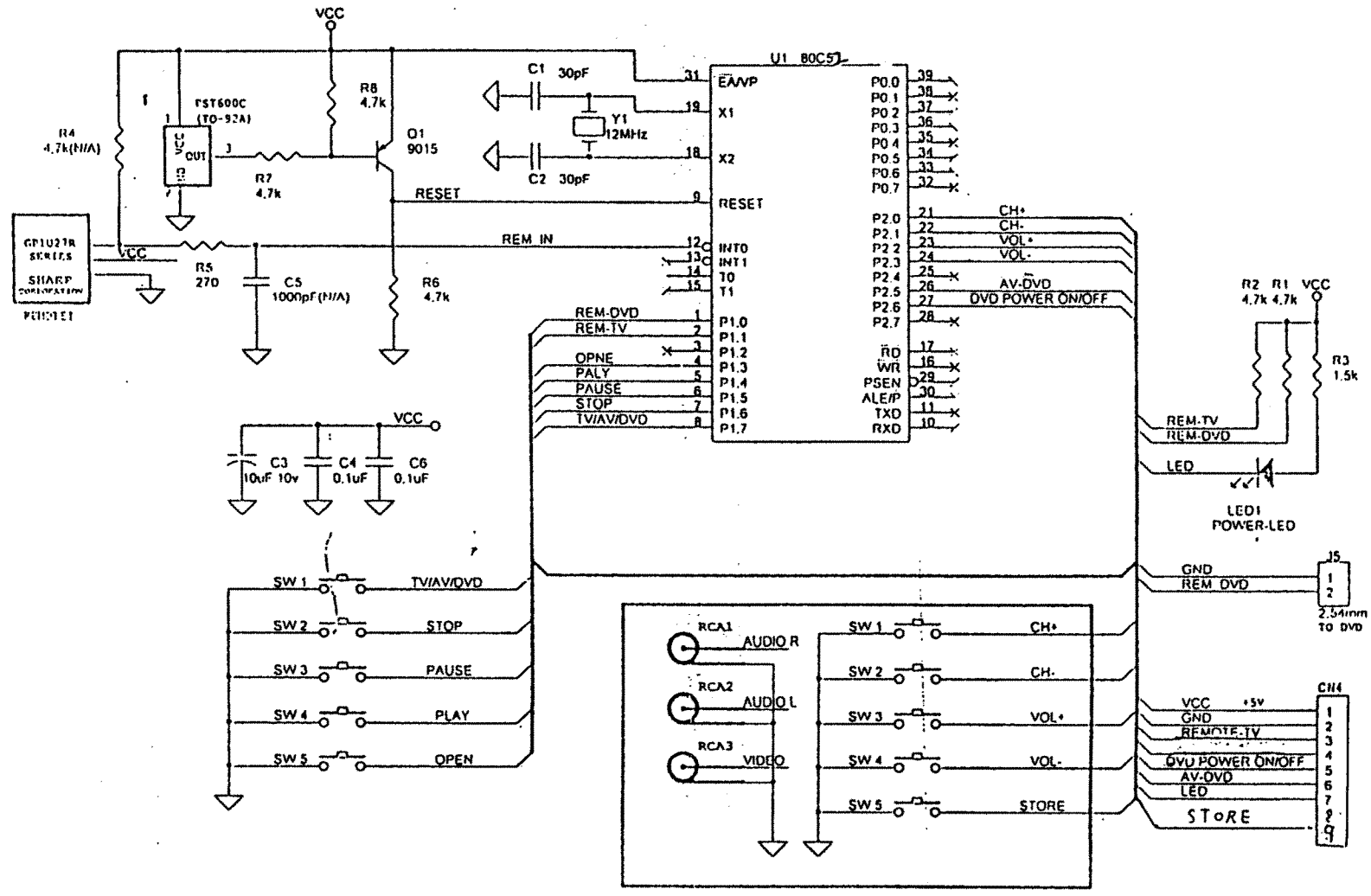
INCLINE THE YOKE UP (OR DOWN)

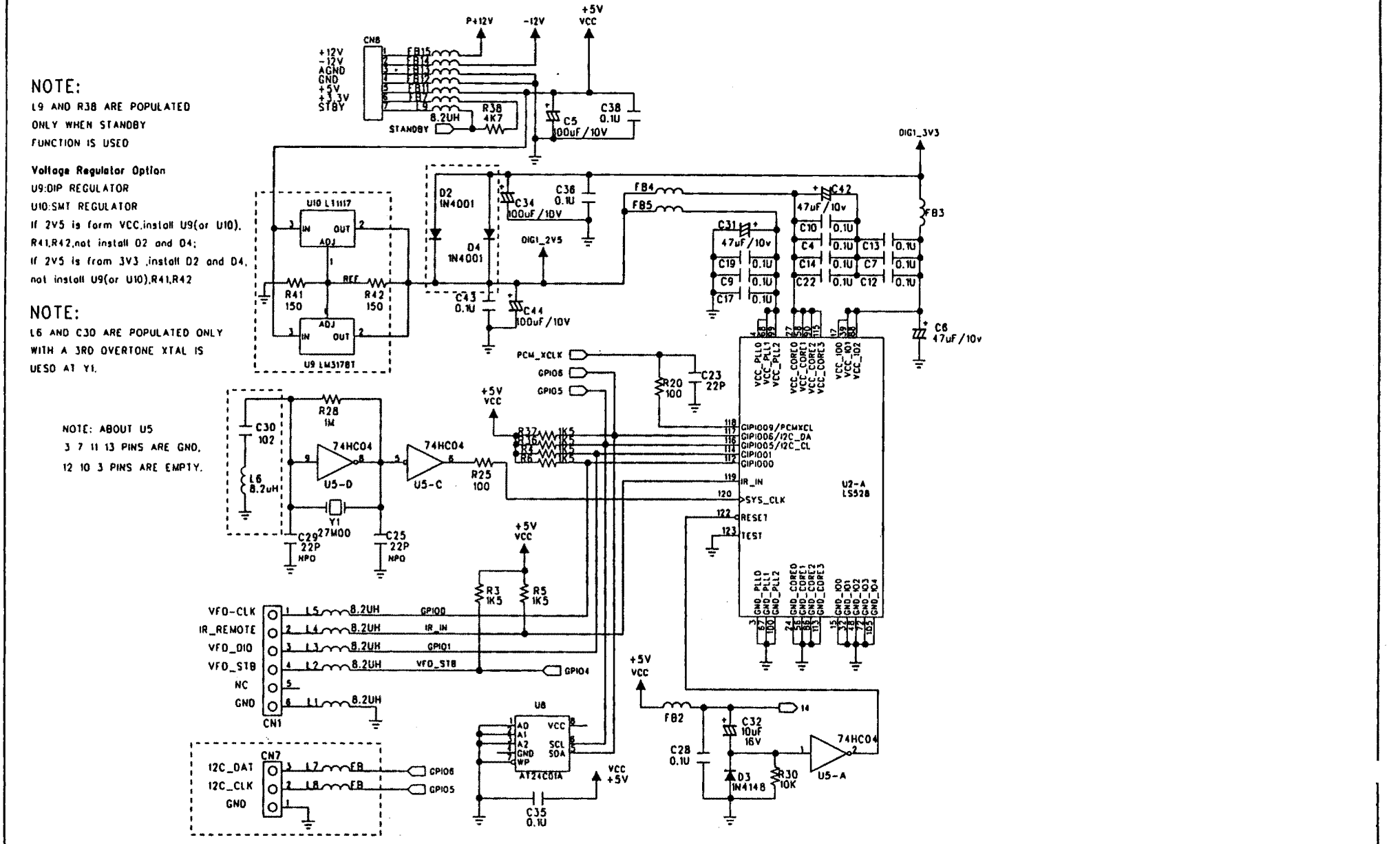
INCLINE THE YOKE RIGHT (OR LEFT)

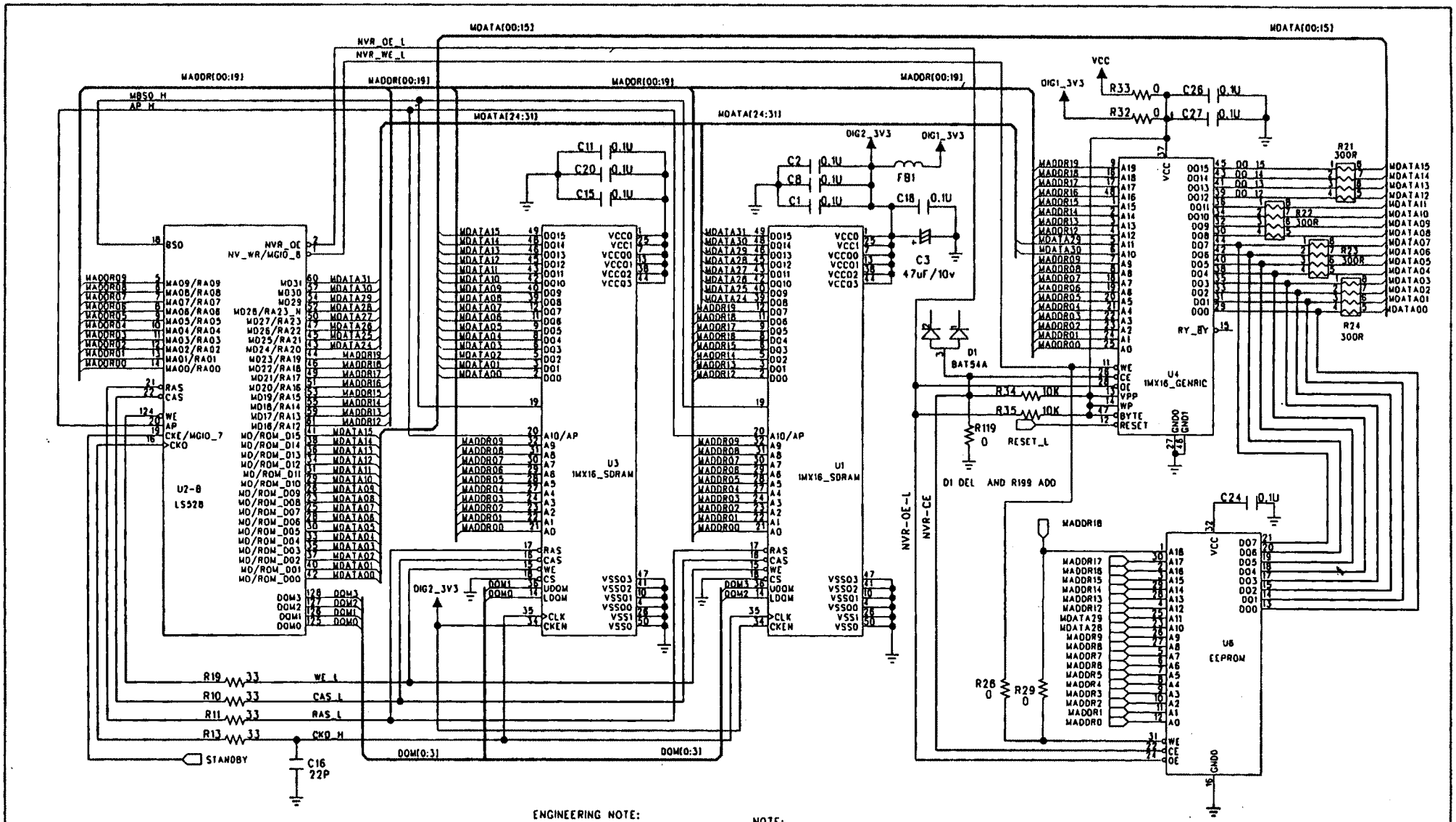
CENTER CONVERGENCE BY CONVERGENCE MAGNETS

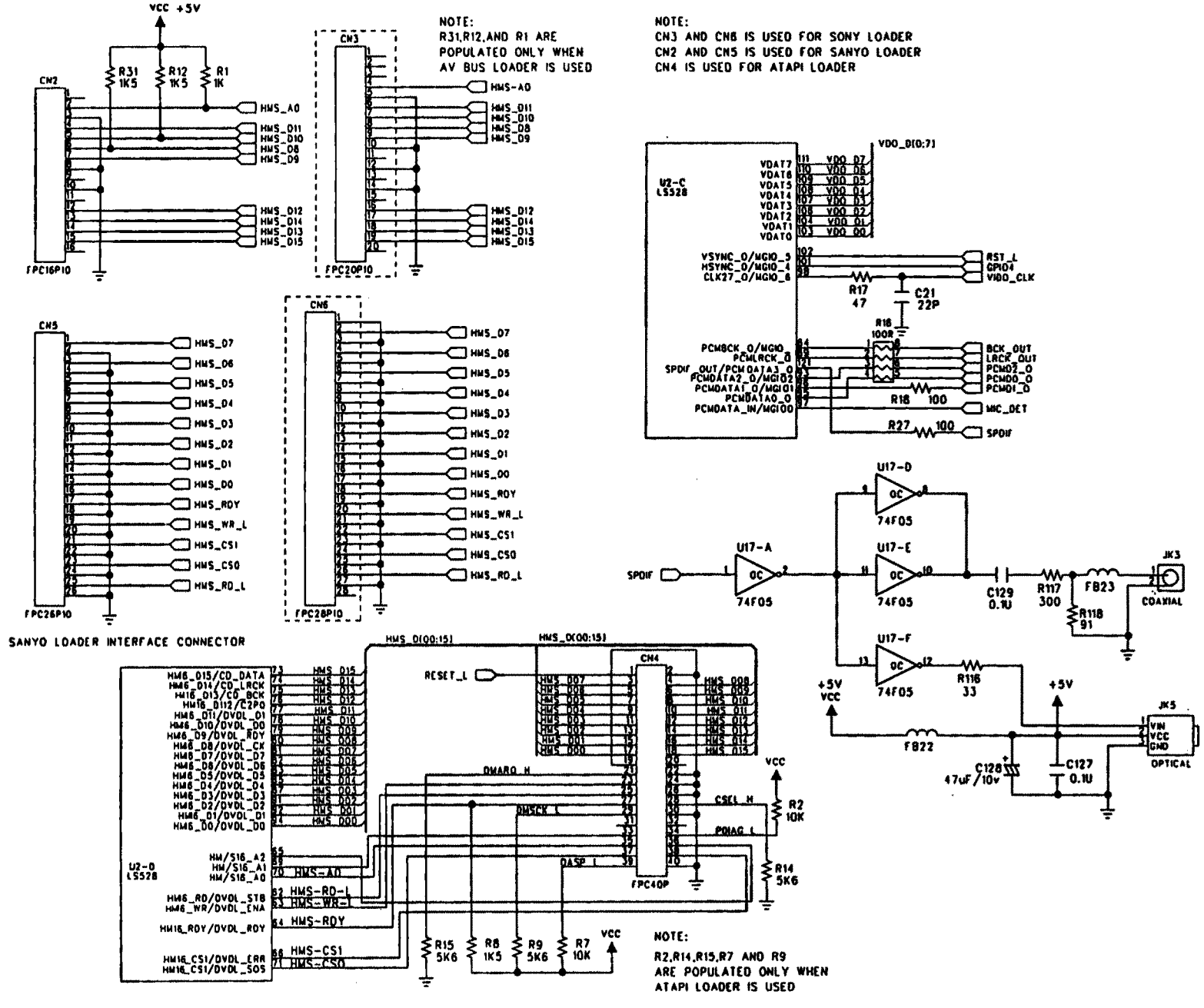
CIRCUMFERENCE CONVERGENCE BY DEF YOKE

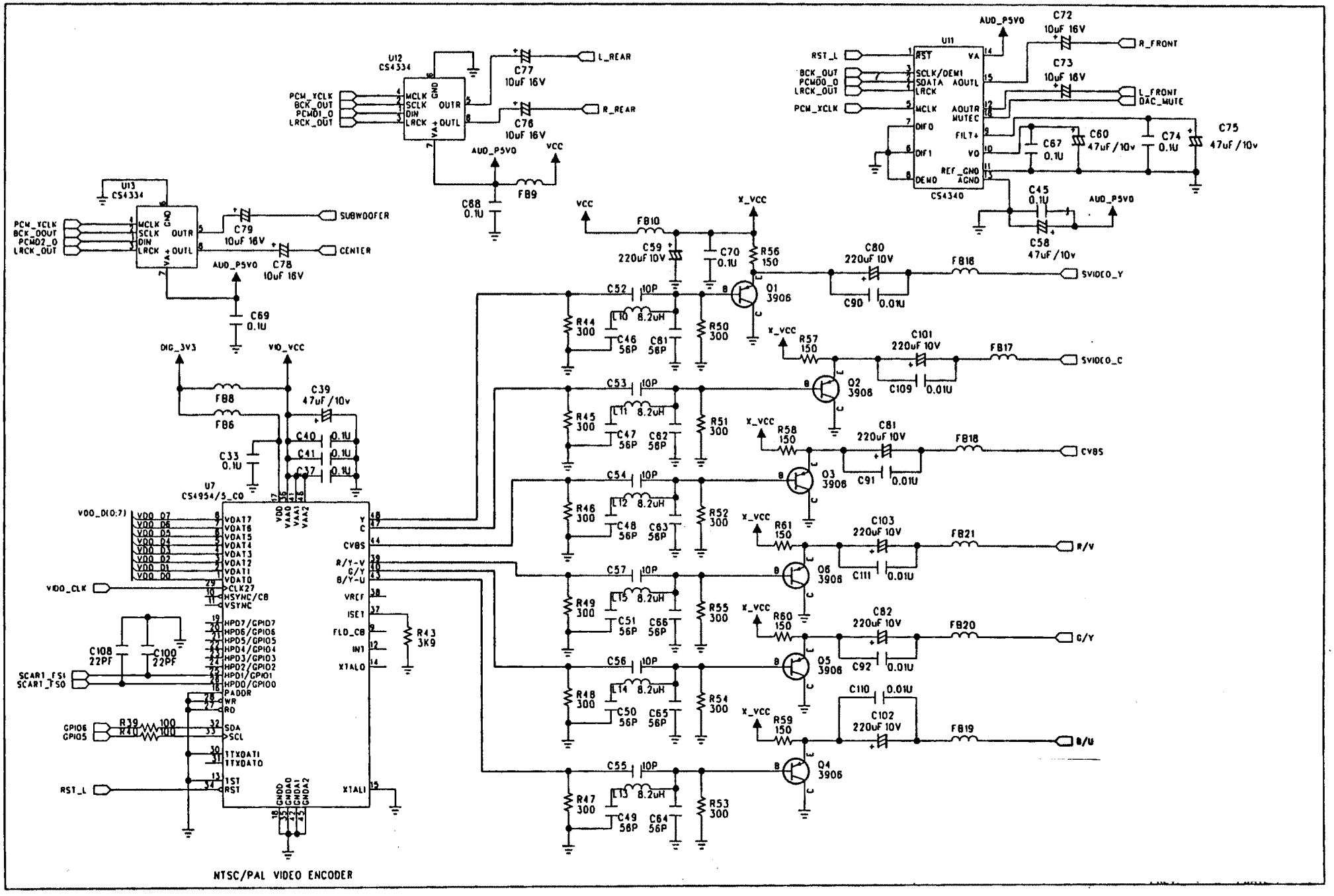
Fig. 7 Dot Movement Pattern

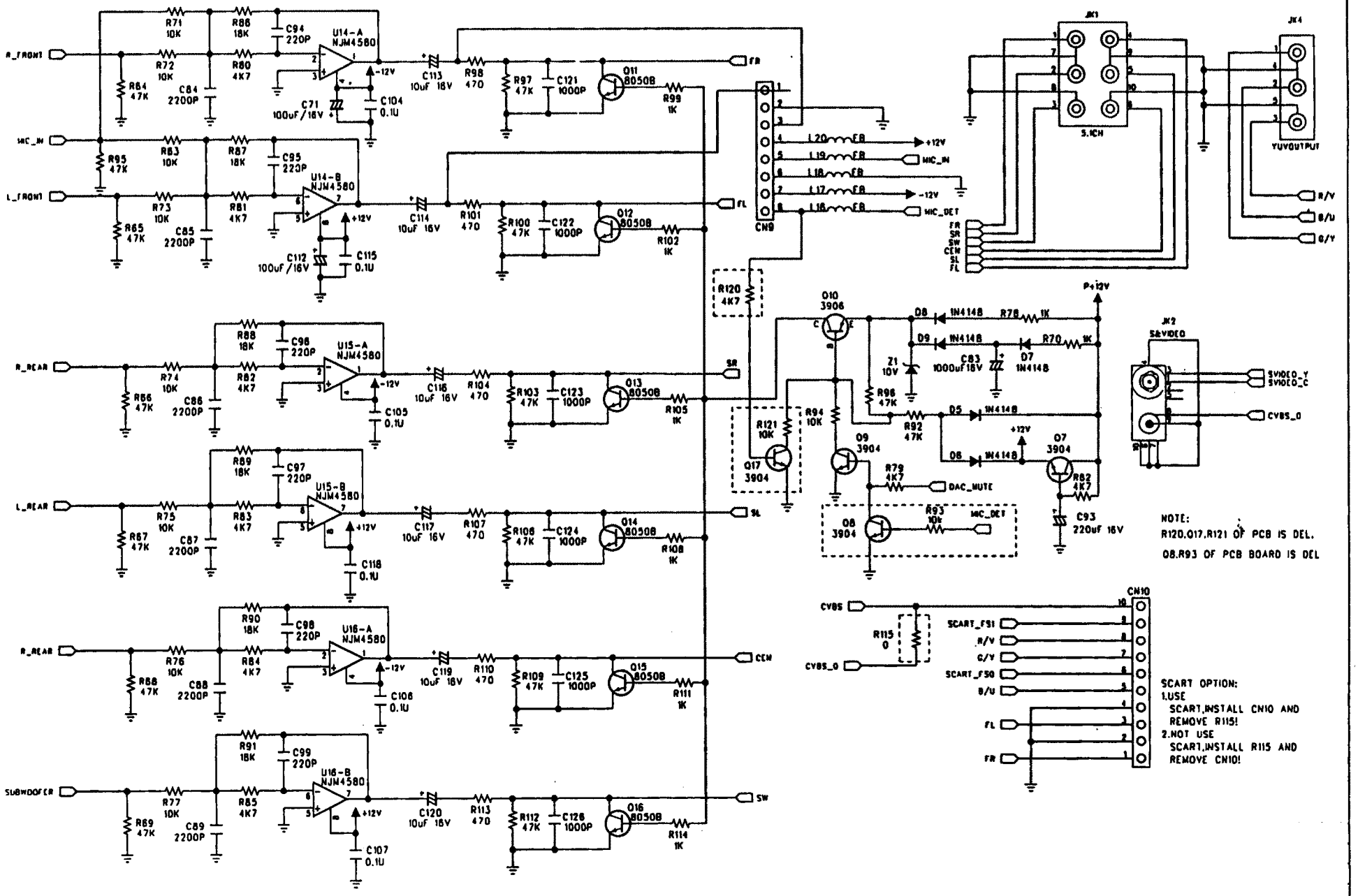

VCC
R8
4.7k
C1 30pF
Y1
12MHz
C2 30pF
U1 80C51
EA/VP
X1
X2
RESET
INT0
INT1
T0
T1
P1.0
P1.1
P1.2
P1.3
P1.4
P1.5
P1.6
P1.7
P0.0
P0.1
P0.2
P0.3
P0.4
P0.5
P0.6
P0.7
P2.0
P2.1
P2.2
P2.3
P2.4
P2.5
P2.6
P2.7
RD
WR
PSEN
ALE/P
TXD
RXD
Q1
9015
R7
4.7k
R4
4.7k(N/A)
R5
270
C5
1000pF(N/A)
R6
4.7k
REM IN
REM-DVD
REM-TV
OPNE
PALY
PAUSE
STOP
TV/AV/DVD
CH+
CH-
VOL+
VOL-
AV-DVD
DVD POWER ON/OFF
R2 R1 VCC
4.7k 4.7k
R3
1.5k
LED
LED1
POWER-LED
C3
10uF 10v
C4
0.1uF
C6
0.1uF
SW 1
SW 2
SW 3
SW 4
SW 5
RCA1
AUDIO R
RCA2
AUDIO L
RCA3
VIDEO
STORE
GND
J5
2.54mm
TO DVD
CN4
REMOTE-TV
STORE


NOTE:
L9 AND R38 ARE POPULATED
ONLY WHEN STANDBY
FUNCTION IS USED
Voltage Regulator Option
U9:DIP REGULATOR
U10:SMT REGULATOR
If 2V5 is form VCC,install U9(or U10),
R41,R42,not install D2 and D4;
If 2V5 is from 3V3 ,install D2 and D4,
not install U9(or U10),R41,R42
NOTE:
L6 AND C30 ARE POPULATED ONLY
WITH A 3RD OVERTONE XTAL IS
UESD AT Y1.
NOTE: ABOUT U5
3 7 11 13 PINS ARE GND,
12 10 3 PINS ARE EMPTY.
CN8
+12V
-12V
AGND
GND
+5V
+3.3V
STBY
P+12V
-12V
+5V
VCC
FB15
FB14
FB13
FB12
FB11
FB7
L9
8.2UH
R38
4K7
STANDBY
C5
100uF/10V
C38
0.1U
DIG1_3V3
U10 L1117
IN
OUT
ADJ
U9 LM317BT
R41
150
R42
150
REF
D2
1N4001
D4
1N4001
C34
100uF/10V
C36
0.1U
DIG1_2V5
C43
0.1U
C44
100uF/10V
FB4
FB5
FB3
C31
47uF/10v
C42
47uF/10v
C10
C4
C13
C14
C7
C22
C12
C19
C9
C17
C6
47uF/10v
PCM_XCLK
GPIO6
GPIO5
R20
100
C23
22P
C30
102
L6
8.2uH
R28
1M
74HC04
U5-D
74HC04
U5-C
R25
100
Y1
27M00
C29
22P
NPO
C25
22P
NPO
R37
R36
R4
R6
1K5
GPIO09/PCMXCL
GPIO06/I2C_DA
GPIO05/I2C_CL
GPIO01
GPIO00
IR_IN
SYS_CLK
RESET
TEST
U2-A
LS528
R3
1K5
R5
1K5
VFD-CLK
IR_REMOTE
VFD_DIO
VFD_STB
NC
GND
L5
L4
L3
L2
L1
8.2UH
GPIO0
IR_IN
GPIO1
VFD_STB
GPIO4
CN1
CN7
I2C_DAT
I2C_CLK
GND
L7
L8
FB
GPIO6
GPIO5
U8
A0
A1
A2
GND
VCC
SCL
SDA
WP
AT24C01A
C35
0.1U
FB2
C32
10uF
16V
C28
0.1U
D3
1N4148
R30
10K
74HC04
U5-A


MDATA[00:15]
NVR_OE_L
NVR_WE_L
MADDR[00:19]
MBSO_H
AP_H
MDATA[24:31]
U2-8
LS528
U3
1MX16_SDRAM
U1
1MX16_SDRAM
U4
1MX16_GENRIC
U6
EEPROM
D1
BAT54A
D1 DEL AND R199 ADD
RESET_L
NVR-CE
NVR-OE-L
R19 33 WE_L
R10 33 CAS_L
R11 33 RAS_L
R13 33 CKO_H
STANDBY
C16 22P
C3 47uF/10v
FB1
R33 0
R32 0
R34 10K
R35 10K
R119 0
R26 0
R29 0
DOM[0:3]
ENGINEERING NOTE:
1.IF FLASH/EPROM ARE 5V OEVICE,SERIES RESISTOR PACKS SHOULD BE 330R EACH.
2.IF FLASH/EPROM ARE 3.3V DEVICE,SERIES RESISTOR PACKS SHOULD BE 33R EACH.
FLASH/EPROM
Voltage Option
5V:R33
3V:R32
NOTE:
U4,C26,C27,R21,R22,R24 AND R24 ARE POPULATED ONLY WHEN A 16 BIT ROM IS USED
NOTE:
U6,C24,R23,R24 AND R26(OR R29) ARE POPULATED ONLY WHEN A 8 BIT ROM IS USED
FLASH/EPROM Option
FLASH:R26
EPTOM:R29


VCC +5V
R31 1K5
R12 1K5
R1 1K
CN2
FPC16P10
CN3
FPC20P10
NOTE:
R31,R12,AND R1 ARE POPULATED ONLY WHEN AV BUS LOADER IS USED
NOTE:
CN3 AND CN6 IS USED FOR SONY LOADER
CN2 AND CN5 IS USED FOR SANYO LOADER
CN4 IS USED FOR ATAPI LOADER
U2-C LS328
VDO_D[0:7]
R17 47
C21 22P
R18 100R
R18 100
R27 100
U17-D
U17-A
U17-E
U17-F
74F05
C129 0.1U
R117 300
FB23
R118 91
JK3
COAXIAL
NOTE: ABOUT U17
3.5.7 PIN IS GND.
8 PIN IS EMPTY.
CN5
FPC26P10
CN6
FPC28P10
SANYO LOADER INTERFACE CONNECTOR
HMS_D[00:15]
CN4
FPC40P
U2-D LS528
R15 5K6
R8 1K5
R9 5K6
R7 10K
R2 10K
R14 5K6
R116 33
FB22
C128 47uF/10v
C127 0.1U
JK5
OPTICAL
NOTE:
R2,R14,R15,R7 AND R9 ARE POPULATED ONLY WHEN ATAPI LOADER IS USED


U12
CS4334
PCM_XCLK
BCK_OUT
PCMD1_0
LRCK_OUT
MCLK
SCLK
DIN
LRCK
OUTR
OUTL
VA
GND
C77
10uF 16V
L_REAR
C76
10uF 16V
R_REAR
AUD_P5V0
VCC
FB9
C88
0.1U
U13
CS4334
C79
10uF 16V
SUBWOOFER
C78
10uF 16V
CENTER
C69
0.1U
U11
CS4340
RST_L
BCK_OUT
PCMD0_0
LRCK_OUT
PCM_XCLK
SCLK/DEM1
SDATA
MCLK
DIF0
DIF1
DEM0
AOUTL
AOUTR
MUTEC
FILT+
VQ
REF_GND
AGND
C72
10uF 16V
R_FRONT
C73
10uF 16V
L_FRONT
DAC_MUTE
C67
0.1U
C60
47uF/10v
C74
0.1U
C75
47uF/10v
C45
0.1U
C58
47uF/10v
X_VCC
FB10
C59
220uF 10V
C70
0.1U
R56
150
Q1
3906
C80
220uF 10V
C90
0.01U
FB16
SVIDEO_Y
C52
10P
L10
8.2uH
C46
56P
C61
56P
R44
300
R50
300
R57
150
Q2
3906
C101
220uF 10V
C109
0.01U
FB17
SVIDEO_C
C53
10P
L11
8.2uH
C47
56P
C62
56P
R45
300
R51
300
R58
150
Q3
3906
C81
220uF 10V
C91
0.01U
FB18
CVBS
C54
10P
L12
8.2uH
C48
56P
C63
56P
R46
300
R52
300
R61
150
Q6
3906
C103
220uF 10V
C111
0.01U
FB21
R/V
C57
10P
L15
8.2uH
C51
56P
C66
56P
R49
300
R55
300
R60
150
Q5
3906
C82
220uF 10V
C92
0.01U
FB20
G/Y
C56
10P
L14
8.2uH
C50
56P
C65
56P
R48
300
R54
300
C110
0.01U
C102
220uF 10V
R59
150
Q4
3906
FB19
B/U
C55
10P
L13
8.2uH
C49
56P
C64
56P
R47
300
R53
300
DIG_3V3
VIO_VCC
FB8
FB6
C39
47uF/10v
C40
0.1U
C41
0.1U
C37
0.1U
C33
0.1U
U7
CS4954/5_CO
VDO_DI(0:7)
VDO_CLK
SCART_FSI
SCART_FSO
GPIO6
GPIO5
RST_L
C108
22PF
C100
22PF
R39
100
R40
100
R43
3K9
VDD
VAA0
VAA1
VAA2
Y
C
CVBS
R/Y-V
G/Y
B/Y-U
VREF
ISET
FLD_CB
INT
XTALO
XTALI
VDO7
VDO6
VDO5
VDO4
VDO3
VDO2
VDO1
VDO0
VDAT7
VDAT6
VDAT5
VDAT4
VDAT3
VDAT2
VDAT1
VDAT0
CLK27
HSYNC/CB
VSYNC
HPD7/GPIO7
HPD6/GPIO6
HPD5/GPIO5
HPD4/GPIO4
HPD3/GPIO3
HPD2/GPIO2
HPD1/GPIO1
HPD0/GPIO0
PADDR
WR
RD
SDA
SCL
TTXDATI
TTXDATO
TST
RST
GNDD
GNDA0
GNDA1
GNDA2
NTSC/PAL VIDEO ENCODER


R_FRONT
MIC_IN
L_FRONT
R_REAR
L_REAR
R_REAR
SUBWOOFER
U14-A NJM4580
U14-B NJM4580
U15-A NJM4580
U15-B NJM4580
U16-A NJM4580
U16-B NJM4580
-12V
+12V
FR
FL
SR
SL
CEN
SW
CN9
MIC_IN
MIC_DET
JK1
5.1CH
JK4
YUVOUTPUT
R/V
B/U
G/Y
JK2
S&VIDEO
SVIDEO_Y
SVIDEO_C
CVBS_O
P+12V
Q10 3906
Q17 3904
Q9 3904
Q8 3904
Q7 3904
DAC_MUTE
CN10
CVBS
SCART_FSI
SCART_FSO
FL
FR
NOTE:
R120,Q17,R121 OF PCB IS DEL.
Q8,R93 OF PCB BOARD IS DEL
SCART OPTION:
1.USE
SCART,INSTALL CN10 AND
REMOVE R115!
2.NOT USE
SCART,INSTALL R115 AND
REMOVE CN10!

P1420/P2120-IVVD1

0705-A20261-01

0706-A20227-01

0705-A20160-01
0705-A20161-01

+05V
IR
TV/AV
OFF DVD DC
AV/DVD
ON/OFF LED
STORE
TO CONTROL PCB

TO DVD,DC AND AC

CAUTION !
LIVE AREA .

AC IN

CIRCUIT SYMBOLS		
CAPACITORS		RESISTORS
CERAMIC CAP.	MYLAR FILM	CARBON FILM
N.P.O. CAP.	METAL POLYESTER	CEMENT
TANTALUM CAP.	POLYESTER FILM	FUSEABLE
NON-POLAY CAP.	POLYPROP YLENE	METER OXIDE
ELECTROLY CAP.		

NOTE!
1.ALL CAPACITORS ARE IN uf UNLESS OTHERWISE NOTED.
ALL CAPACITORS ARE 50V UNLESS OTHERWISE NOTED.
2.ALL RESISTORS ARE IN OHM 1/4W UNLESS OTHERWISE NOTED
3.ALL DIODES ARE IN IN4148 UNLESS OTHERWISE NOTED.
4.ALL TRANSTORS (NPN) ARE 2SC1815 UNLESS OTHERWISE NOTED
ALL TRANSTORS (PNP) ARE 2SC1015 UNLESS OTHERWISE NOTED.
5.DC VOLTAGE ARE MEASURED FROM POINTS INDICATED TO THE CIRCUIT GROUND WITH A DIGITAL MULTIMETER TEST.
6.WAVEFORMS ARE TAKEN WITH SETTING CONTROLS TO A NORMAL CONDITIONS (COLOR PHILIPS PATTERN).
7.THIS CIRCUIT DIAGRAM IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.
8. ⚠ SAFETY CRITICAL DEVICE.

1 460 Vp-p	2 85 Vp-p	3 100 Vp-p	4 900 Vp-p	5 2.7 Vp-p	6 9 Vp-p	7 47 Vp-p	8 2 Vp-p	9 4.8 Vp-p
10 11 Vp-p	11 0.85 Vp-p	12 2.2 Vp-p	13 2.2 Vp-p	14 2.2 Vp-p	15 82 Vp-p	16 90 Vp-p	17 80 Vp-p	

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